

| | | | |
|-------------------------------|--------------------------|---------------------|--|
| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/604,245 | LIU ET AL. | |
| | Examiner Shouxiang Hu | Art Unit 2811 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS. This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to the 04-01-2005 amendment.
2. The allowed claim(s) is/are 23-25,27,44,45 and 47-49.
3. The drawings filed on 04 July 2003 are accepted by the Examiner.
4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some*
 - c) None
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

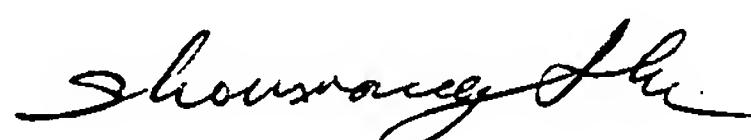
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date _____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 3/23/2005
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application (PTO-152)
6. Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other _____.



SHOUXIANG HU
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a FAX dated 06-07-2005 from Mr. Winston Hsu to the examiner, following email communications between them during June 3-7, 2005.

The application has been amended as follows:

IN THE CLAIMS

1-22. (cancelled)

23. (currently amended): A light emitting diode having an adhesive layer and a reflective layer, comprising at least:

a substrate;

a reflective layer formed over the substrate;

a first reaction layer formed over said reflective layer;

a transparent adhesive layer formed over said first reaction layer;

a second reaction layer formed over said transparent adhesive layer;

and an LED stack formed over said second reaction layer;

wherein ~~at least one each~~ of the first and second reaction layers is formed to enhance an adhesion provided by the transparent adhesive layer;
wherein said transparent adhesive layer comprises at least a material selected from the group consisting of polyimide (PI), benzocyclobutene (BCB), and perfluorocyclobutane (PFCB); and
wherein each said first and second reaction layers comprises at least a material selected from the group consisting of SiNx, Ti, and Cr.

24. (original): A light emitting diode having ~~an adhesive layer and a reflective layer~~ according to claim 23, further comprising a transparent conductive layer between said second reaction layer and said LED stack.

25. (original): A light emitting diode having ~~an adhesive layer and a reflective layer~~ according to claim 23, wherein said reflective layer is a reflective metal layer.

26. (cancelled)

27. (previously presented): A light emitting diode having ~~an adhesive layer and a reflective layer~~ according to claim 25, wherein said reflective metal layer comprises at least a material selected from the group consisting of In, Sn, Al, Au, Pt, Zn, Ag, Ti, Pb, Pd, Ge, Cu, AuBe, AuGe, Ni, PbSn, and AuZn.

28. (cancelled)

29. (cancelled)

30. (cancelled)

31-43. (cancelled)

44. (currently amended): A light emitting diode having an adhesive layer and a reflective layer, comprising at least:

a reflective means;

a first reaction layer formed over said reflective means;

a transparent adhesive layer formed over said first reaction layer;

a second reaction layer formed over said transparent adhesive layer; and

an LED stack formed over said second reaction layer;

wherein the first and second reaction layers enhance adhesion provided by the transparent adhesive layer,

wherein said transparent adhesive layer comprises at least a material selected from the group consisting of polyimide (PI), benzocyclobutene (BCB), and perfluorocyclobutane (PFCB); and

wherein each said first and second reaction layers comprises at least a material selected from the group consisting of SiNx, Ti, and Cr.

45. (currently amended): A light emitting diode having an adhesive layer and a reflective layer, comprising at least:
- a substrate;
 - a reflective layer disposed on the substrate;
 - a first reaction layer formed on said reflective layer;
 - a transparent adhesive layer formed directly on said first reaction layer, said first reaction layer adhering to the transparent adhesive layer;
 - a second reaction layer formed directly on said transparent adhesive layer, said second reaction layer adhering to the transparent adhesive layer; and
 - an LED stack formed over said second reaction layer,
- wherein said transparent adhesive layer comprises at least a material selected from the group consisting of polyimide (PI), benzocyclobutene (BCB), and perfluorocyclobutane (PFCB); and
- wherein each said first and second reaction layers comprises at least a material selected from the group consisting of SiNx, Ti, and Cr.

46. (cancelled)

47. (previously presented): A light emitting diode having an adhesive layer and a reflective layer according to claim 45, further comprising a transparent conductive layer between said second reaction layer and said LED stack.

48. (previously presented): A light emitting diode having an adhesive layer and a reflective layer according to claim 45, wherein said reflective layer is a reflective metal layer.

49. (previously presented): A light emitting diode having an adhesive layer and a reflective layer according to claim 48, wherein said reflective metal layer comprises at least a material selected from the group consisting of In, Sn, Al, Au, Pt, Zn, Ag, Ti, Pb, Pd, Ge, Cu, AuBe, AuGe, Ni, PbSn, and AuZn.

50. (cancelled)

51. (cancelled)

Allowable Subject Matter

Claims 23-25, 27, 44, 45 and 47-49 are allowed

Conclusion

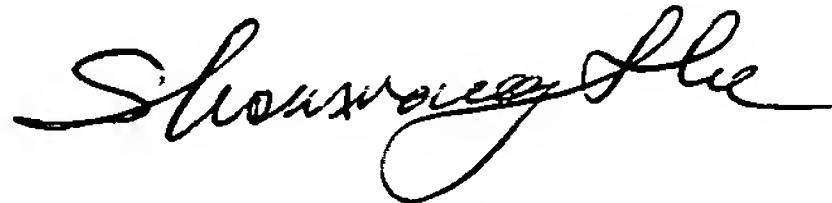
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference A is cited as being related to a bonded LED structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
June 7, 2005


SHOUXIANG HU
PRIMARY EXAMINER